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10/696,034

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09/30/2008

EXAMINER

JAKOVAC, RYAN J

ART UNIT

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2145

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PAPER

Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Office Action Summary	Application No. 10/696,034	Applicant(s) RABINOVITCH ET AL.	
	Examiner RYAN J. JAKOVAC	Art Unit 2145	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 24 June 2008.
- 2a) ☒ This action is **FINAL**. 2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-46 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☐ Claim(s) 1-46 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
 2. ☐ Certified copies of the priority documents have been received in Application No. _____.
 3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|--|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413) |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | Paper No(s)/Mail Date. _____ |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO/SB/08) | 5) <input type="checkbox"/> Notice of Informal Patent Application |
| Paper No(s)/Mail Date _____ | 6) <input type="checkbox"/> Other: _____ |

DETAILED ACTION

Claim Rejections - 35 USC § 103

1. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

2. Claims 1-22, 24-41, and 43-46 are rejected under 35 U.S.C. 103(a) as being unpatentable over US 20040225151 to Mei et al (hereinafter Mei) in view of “Real-time SLA Monitoring Tools”.

Regarding claim 1, 25, 44, and 46, Mei teaches a method of characterizing a content traffic flow at communication nodes of a communications network for communications network Service Level Agreement (SLA) compliance assessment by a central entity connected to said communication nodes, the method comprising steps of:

(a) at least one of said communications modes tracking cumulative content arrivals, in real time, for the content traffic flow to derive a time variation of cumulative content arrivals (Mei, paragraph [0022-0025], a plurality of sensors monitor network traffic. The sensors monitor

network traffic and communicate information back to the SLA enforcing system. The sensors therefore function as communication nodes.); and

Mei does not expressly disclose (b) said at least one of said nodes adjusting characteristic arrival curve parameters in fitting an arrival curve to the variation of cumulative content arrivals for the content traffic flow. However, “Real-time SLA Monitoring Tools” discloses said at least one of said nodes adjusting characteristic arrival curve parameters in fitting an arrival curve to the variation of cumulative content arrivals for the content traffic flow (“Real-time SLA Monitoring Tools”, discloses a plurality of network nodes which run in real-time to provide SLA verification by monitoring and testing data. The network nodes, or "verifiers", existing at a plurality of points throughout the network, apply different testing parameters to the data they monitor. The results of the testing is then transmitted back to the SLA verification servers.); and

Mei discloses (c) said at least one of said nodes reporting said adjusted arrival curve parameters to said central entity to enable said central entity to carry out said SLA compliance assessment with respect to the content traffic flow, thereby reducing reporting bandwidth overhead by minimizing an amount of content arrival information communicated to central entity (Mei, [0022-0025], sensors report data back to the SLA enforcing system in order to enforce SLA agreements.).

Therefore it would have been obvious to one of ordinary skill in the art at the time of invention to combine at least one of said nodes adjusting characteristic arrival curve parameters in fitting an arrival curve to the variation of cumulative content arrivals for the content traffic flow as taught by “Real-time SLA Monitoring Tools” with the method of Mei in order to provide a combination of continuous traffic analysis and proactive network testing in order to

prove service performance as well as to provide active service level agreement verification (See “Real-time SLA Monitoring Tools”).

Regarding claim 2 and claim 25, the combination of Mei and “Real-time SLA Monitoring Tools” teaches the method of providing a content traffic flow characterization as claimed in claim 1, wherein the step of reporting curve parameters to the central entity is carried out in real time, and reporting is limited to arrival curve parameters only (“Real-time SLA Monitoring Tools”, the verifiers send back reports (i.e. arrival curve parameters) to the central SLA verification system.).

Regarding claim 3 and claim 26, the combination of Mei and “Real-time SLA Monitoring Tools” teaches the method claimed in claims 1 and 25, Mei does not expressly disclose wherein reporting arrival curve parameters to the central entity, the method further comprises a step of: said at least one of said nodes including a timestamp specifying the time of the arrival curve fit. However, “Real-time SLA Monitoring Tools” discloses said at least one of said nodes including a timestamp specifying the time of the arrival curve fit (“Real-time SLA Monitoring Tools”, verifiers time-stamp packets.)

Regarding claim 4 and claim 27, The combination of Mei and “Real-time SLA Monitoring Tools” teaches the method claimed in claim 1, wherein reporting arrival curve parameters to the central entity, the method further comprises a step of: said at least one of said nodes receiving a request for an arrival curve parameter update (Mei, paragraph [0013],

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incoming events cause an action which results in dynamic updates (i.e. arrival curve parameter updates).), reporting arrival curve parameters to the central entity only in response to a request further providing a reduction in the reporting bandwidth overhead (Mei, paragraph [0022], Network traffic is monitored and reported to the SLA system.).

Regarding claim 5 and claim 28, The combination of Mei and “Real-time SLA Monitoring Tools” teaches the method claimed in claim 1, wherein tracking cumulative content arrivals for the content traffic flow, the method further comprises a step of: said at least one of said nodes tracking one of cumulative received packets, bits, bytes, words, and double words (Mei, paragraph [0022], Network traffic is monitored.).

Regarding claim 6 and claim 29, The combination of Mei and “Real-time SLA Monitoring Tools” teaches the method claimed in claim 1, wherein adjusting arrival curve parameters in fitting the arrival curve, the method further comprises a step of: said at least one of said nodes adjusting two arrival curve parameters in fitting a two parameter arrival curve (Mei, paragraph 0029], signature and ID.).

Regarding claim 7 and claim 30, The combination of Mei and “Real-time SLA Monitoring Tools” teaches the method claimed in claim 1, wherein adjusting arrival curve parameters in fitting the arrival curve, the method further comprises a step of: said at least one of said nodes adjusting four arrival curve parameters in fitting a four parameter arrival curve (Mei, paragraph 0029], Four parameters in security rules.).

Regarding claim 8 and claim 31, The combination of Mei and “Real-time SLA Monitoring Tools” teaches the method claimed in claim 1, wherein adjusting arrival curve parameters in fitting the arrival curve, the method further comprises a step of: said at least one of said nodes fitting the arrival curve in accordance with one of a shifted linear regression procedure, and a convex hull fitting procedure (Mei, paragraph [0037], security rules are mapped into a data point in a multidimensional space.).

Regarding claim 9, The combination of Mei and “Real-time SLA Monitoring Tools” teaches a physical port controller implementing the method claimed in claim 1, said at least one of said nodes comprising a hardware arrival curve generator successively fitting arrival curves to the time variation of cumulative content arrivals for the content traffic flow (Mei, Fig. 1, sensor, firewall, SLA enforcing system.).

Regarding claim 10, The combination of Mei and “Real-time SLA Monitoring Tools” teaches a line card implementing the method claimed in claim 1, said at least one of said nodes comprising arrival curve generation means successively fitting arrival curves to the time variation of cumulative content arrivals for the content traffic flow (Mei, Fig. 1, sensor, firewall, SLA enforcing system.).

Regarding claim 11, The combination of Mei and “Real-time SLA Monitoring Tools” teaches a communications network node implementing the method claimed in claim 1 said at

least one of said nodes comprising one of: a hardware arrival curve generator, and a software arrival curve generator; the communications network node successively fitting arrival curves to the time variation of cumulative content arrivals for the content traffic flow (Mei, Fig. 1, sensor, firewall, SLA enforcing system.).

Regarding claim 12 and 45, Mei teaches a method of assessing communications network conformance to a Service Level Agreement (SLA) in respect of a content traffic flow at communication nodes of a communications network, the method comprising steps of: Mei does not expressly disclose (a) receiving from at least one of said communication nodes an arrival curve parameter report in respect of a tracked content traffic flow from a network node in real time, However, “Real-time SLA Monitoring Tools” discloses (a) receiving from at least one of said communication nodes an arrival curve parameter report in respect of a tracked content traffic flow from a network node in real time (“Real-time SLA Monitoring Tools”, reports are sent back from monitoring nodes to the central SLA verification system.);

Mei discloses (b) computing a resource utilization related value based on the received arrival curve parameter report in respect of a content traffic flow pattern and at least one service curve (Mei, paragraph [0026], incoming events are matched against security rules.); and (c) providing a communications network SLA conformance assessment based on the computed resource utilization related value, wherein receiving arrival curve parameters only enables the provision of a real-time scalable communications network SLA conformance assessment solution while reducing bandwidth overhead by minimizing an amount of content arrival information communicated by said at least one of said nodes (Mei, paragraphs [0013], [0022-

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0025], actions are triggered to enforce SLA based on monitoring incoming events and security rules.).

Therefore it would have been obvious to one of ordinary skill in the art at the time of invention to combine (a) receiving from at least one of said communication nodes an arrival curve parameter report in respect of a tracked content traffic flow from a network node in real time as taught by “Real-time SLA Monitoring Tools” with the method of Mei in order to provide a combination of continuous traffic analysis and proactive network testing in order to prove service performance as well as to provide active service level agreement verification (See “Real-time SLA Monitoring Tools”).

Regarding claim 13 and claim 32, The combination of Mei and “Real-time SLA Monitoring Tools” teaches the method claimed in claim 12, further comprising the prior step of: requesting an arrival curve parameter report from one of said nodes (Mei, paragraph [0022], SLA enforcing system receives the monitored network traffic.).

Regarding claim 14 and claim 33, The combination of Mei and “Real-time SLA Monitoring Tools” teaches the method claimed in claim 12, wherein prior to computing resource utilization related values, the method further comprises a step of: retrieving the at least one service curve from storage in respect of the content traffic flow (Mei, paragraph [0014], post-event analysis is implemented for dynamically changing the mapping of SLAs and security rules.).

Regarding claim 15 and claim 34, The combination of Mei and “Real-time SLA Monitoring Tools” teaches the method claimed in claim 12, wherein prior to computing resource utilization related values, the method further comprises a step of: retrieving the at least one service curve from said at least one node, said at least one node being in a path of the content traffic flow (Mei, paragraph [0022-0025], sensors placed through the system send information to the SLA server.).

Regarding claim 16 and claim 35, The combination of Mei and “Real-time SLA Monitoring Tools” teaches the method claimed in claim 12, wherein prior to computing resource utilization related values, the method further comprises a step of: retrieving from storage a sequence in which multiple service curves are to be combined with the arrival curve parameters in respect of the content traffic flow (Mei, paragraph [0014], post-event analysis is implemented for dynamically changing the mapping of SLAs and security rules.).

Regarding claim 17 and claim 36, The combination of Mei and “Real-time SLA Monitoring Tools” teaches the method claimed in claim 12, wherein prior to computing resource utilization related values, the method further comprises a step of: discovering a sequence in which multiple service curves are to be combined with the arrival curve parameters in respect of the content traffic flow (Mei, paragraph [0013], security rules are mapped to a plurality of incoming events.).

Regarding claim 18 and claim 37, The combination of Mei and “Real-time SLA Monitoring Tools” teaches the method claimed in claim 12, wherein computing resource utilization related values, the method further comprises a step of: computing Quality-of-Service (QoS) parameters (Mei, paragraph [0004], SLAs include QoS requirements.).

Regarding claim 19 and claim 38, The combination of Mei and “Real-time SLA Monitoring Tools” teaches the method claimed in claim 12, wherein computing resource utilization related values, the method further comprises a step of: convolving an arrival curve respecting the received arrival curve parameters with a service curve (Mei, , Arriving content is matched against security rules.).

Regarding claim 20 and claim 39, The combination of Mei and “Real-time SLA Monitoring Tools” teaches the method claimed in claim 12, wherein providing a communications network SLA conformance assessment, the method further comprises a step of: comparing the computed resource utilization related value with a corresponding agreed upon resource utilization value (Mei, paragraph [0013], incoming events are processed and evaluated against security rules.).

Regarding claim 21 and claim 40, The combination of Mei and “Real-time SLA Monitoring Tools” teaches the method claimed in claim 12, wherein providing a communications network SLA conformance assessment, the method further comprises a step of: selectively modifying communications network operational parameters to ensure that the

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resource utilization values comply with agreed upon SLA resource utilization values (Mei, paragraph [0013], dynamic updates to security rules.).

Regarding claim 22 and claim 41, The combination of Mei and “Real-time SLA Monitoring Tools” teaches the method claimed in claim 12, wherein providing a communications network SLA conformance assessment, the method further comprises a step of: selectively modifying SLA specified resource utilization values to ensure that the current communications network operation is accommodated in the SLA (Mei, paragraph [0013], dynamic updates to security rules.).

Regarding claim 24, The combination of Mei and “Real-time SLA Monitoring Tools” teaches a network management system implementing the method claimed in claim 12 in providing a communications network SLA conformance assessment in respect of the content traffic flow (Mei, paragraph [0013], [0022-0025], Network traffic is monitored and analyzed in accordance with SLA requirements.).

Regarding claim 43, The combination of Mei and “Real-time SLA Monitoring Tools” teaches the method claimed in claim 25, wherein the central entity is a network management system (Fig. 1, SLA system.).

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3. Claims 23 and 42 are rejected under 35 U.S.C. 103(a) as being unpatentable over the combination of Mei and “Real-time SLA Monitoring Tools” in view of U.S. 2002/0049841 to Johnson et al (hereinafter Johnson).

Regarding claim 23 and claim 42, the combination of Mei and “Real-time SLA Monitoring Tools” teaches the method claimed in claim 12. The combination of Mei and “Real-time SLA Monitoring Tools” does not expressly disclose wherein providing a communications network SLA conformance assessment, the method further comprises a step of: providing a proposal for traffic content redirection onto one of existing infrastructure and new to be deployed infrastructure.

However, Johnson teaches the method further comprises a step of: providing a proposal for traffic content redirection onto one of existing infrastructure and new to be deployed infrastructure (Johnson, paragraph [0271], Service functions include redirection decisions.).

Therefore it would have been obvious to one of ordinary skill in the art at the time of invention to combine the method further comprises a step of: providing a proposal for traffic content redirection onto one of existing infrastructure and new to be deployed infrastructure as taught by Johnson with the method of the combination of Mei and “Real-time SLA Monitoring Tools” in order to manage traffic on a network and provide differentiated service functions or tasks that may be performed by a traffic management node include, such as redirection decisions (Johnson, paragraph [0271]).

Conclusion

Response to Arguments

4. Applicant's arguments with respect to claim 1-43 have been considered but are moot in view of the new ground(s) of rejection.

5. Applicant's amendment necessitated the new ground(s) of rejection presented in this Office action. Accordingly, **THIS ACTION IS MADE FINAL**. See MPEP § 706.07(a). Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the date of this final action.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to RYAN J. JAKOVAC whose telephone number is (571)270-5003. The examiner can normally be reached on Monday through Friday, 7:30 am to 5:00 pm EST.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Jason D. Cardone can be reached on (571) 272-3933. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

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Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

/RJ/

/Jason D Cardone/
Supervisory Patent Examiner, Art Unit 2145